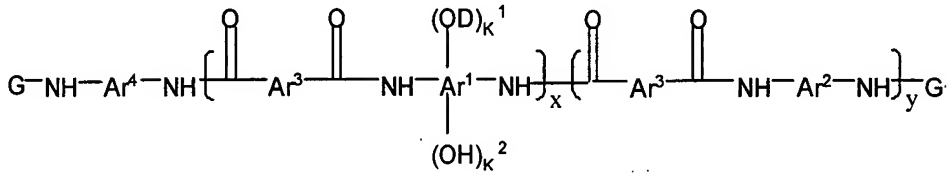
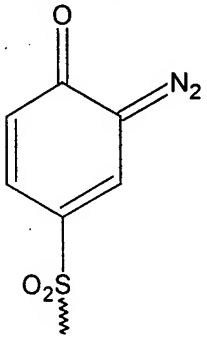
Listing of Claims in the Application

1. (Original) A polybenzoxazole precursor polymer with Structure I

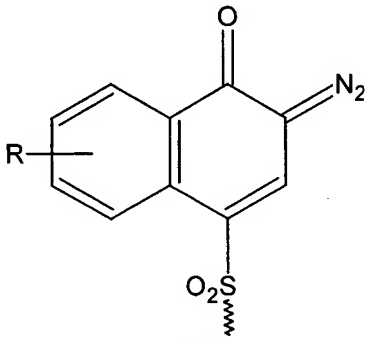


(I)

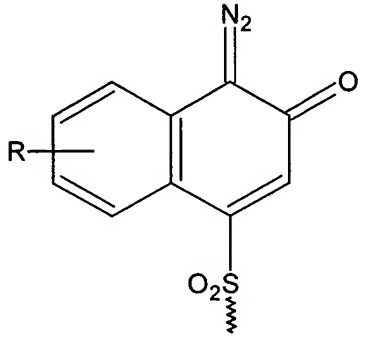
wherein Ar^1 is selected from the group consisting of a tetravalent aromatic group, a tetravalent heterocyclic group and mixtures thereof; Ar^2 is selected from the group consisting of a divalent aromatic, a divalent heterocyclic, a divalent alicyclic and a divalent aliphatic group that may contain silicon; Ar^3 is selected from the group consisting of a divalent aromatic group, a divalent aliphatic group, a divalent heterocyclic group and mixtures thereof; Ar^4 is selected from the group consisting of $Ar^1(OH)_2$ and Ar^2, x is from about 10 to about 1000; y is from 0 to about 900; D is selected from the group consisting of one of the following moieties IIa-IIe:



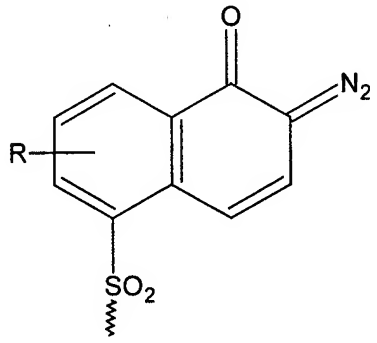
(IIa)



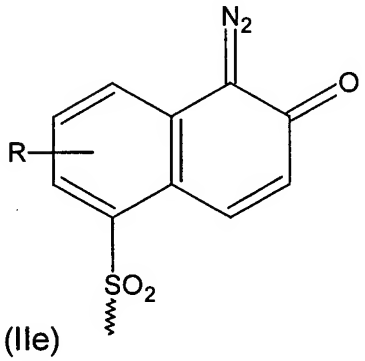
(IIb)



(IIc)



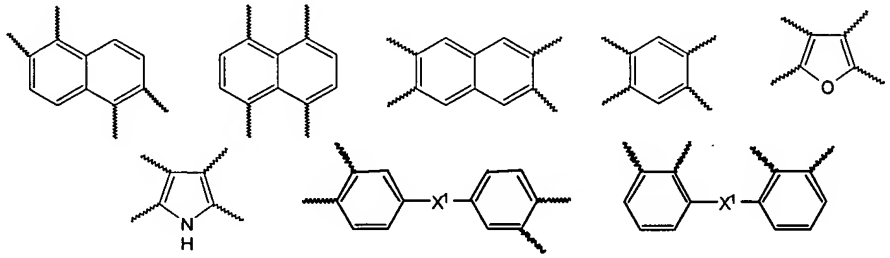
(IId)



(IIe)

wherein, R is selected from the group consisting of H, a $C_1 - C_4$ alkyl group, a $C_1 - C_4$ alkoxy group and a cyclohexyl group, k^1 can be any positive value of up to about 0.5, k^2 can be any value from about 1.5 to about 2 with the proviso that $(k^1+k^2)=2$, x is from about 10 to about 1000; y is from about 0 to about 900; G is an organic group having a carbonyl, carbonyloxy or sulfonyl group attached directly to the terminal NH of the polymer.

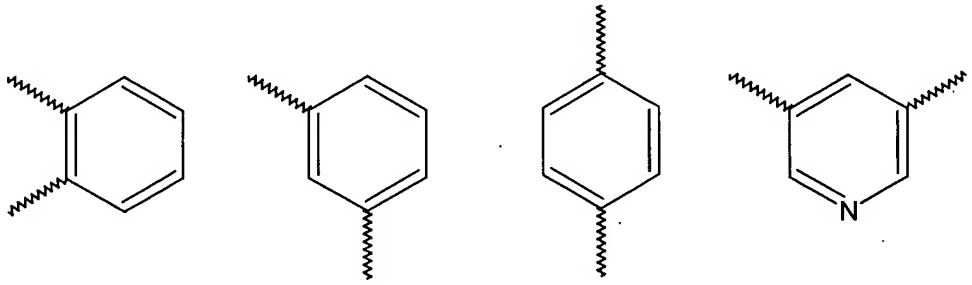
2. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein Ar^1 is a moiety selected from the group consisting of

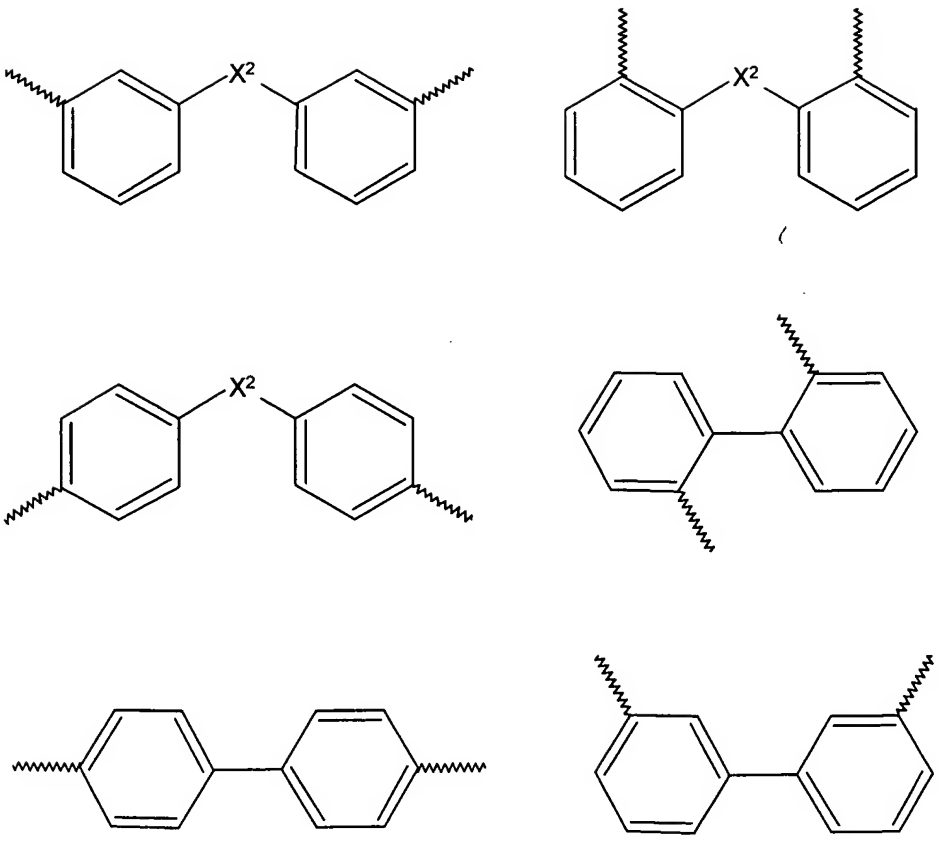


wherein X^1 is selected from the group consisting of -O-, -S-, $-C(CF_3)_2-$, $-CH_2-$, $-SO_2-$, -NHCO- and $-SiR^9{}_2-$ and each R^9 is independently selected from the group consisting of a $C_1 - C_7$ linear or branched alkyl and a $C_5 - C_8$ cycloalkyl group.

3. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein Ar^1 is a moiety derived from a reactant selected from the group consisting of 2,2-bis(3-amino-4-hydroxyphenyl)-hexafluoropropane, 3,3'-dihydroxy-4,4'-diaminodiphenylether, 3,3'-dihydroxybenzidine, 4,6-diaminoresorcinol, and 2,2-bis(3-amino-4-hydroxyphenyl)propane and mixtures thereof.

4. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein Ar^3 is a moiety selected from the group consisting of





wherein X^2 is selected from the group consisting of -O-, -S-, -$C(CF_3)_2$-, -CH_2-, -SO_2-, and -NHCO-.

5. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein Ar^3 is a moiety derived from a reactant selected from the group consisting of 4,4'-diphenyletherdicarboxylic acid, terephthalic acid, isophthalic acid, isophthaloyl dichloride, phthaloyl dichloride, terephthaloyl dichloride, 4,4'-diphenyletherdicarboxylic acid dichloride, dimethylisophthalate, dimethylphthalate, dimethylterphthalate, diethylisophthalate, diethylphthalate, diethylterphthalate and mixtures thereof.

6. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein D is selected from the group consisting of the moiety IIb and the moiety IId.

7. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein k^1 is from about 0.01 to about 0.1.

8. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein G is an organic group having a carbonyl group attached directly to the terminal NH of the polybenzoxazole precursor polymer.

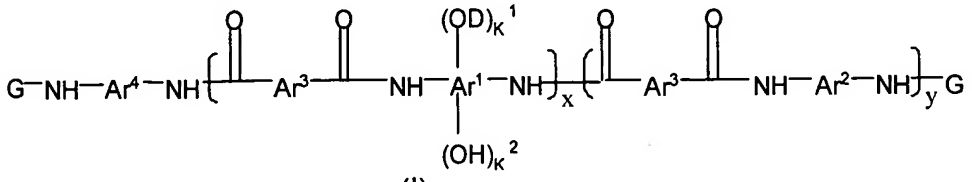
9. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein G is alkylcarbonyl.

10. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein Ar^1 is a moiety derived from a reactant selected from the group consisting of 2,2-bis(3-amino-4-hydroxyphenyl)-hexafluoropropane, 3,3'-dihydroxy-4,4'-diaminodiphenylether, 3,3'-dihydroxybenzidine, 4,6-diaminoresorcinol, and 2,2-bis(3-amino-4-hydroxyphenyl)propane or mixtures thereof, and D is selected from the group consisting of the moiety IIb and the moiety IId.

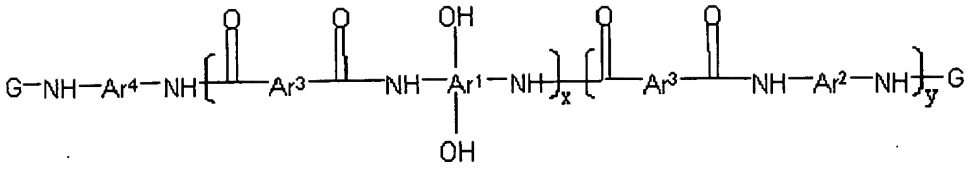
11. (Original) A polybenzoxazole precursor polymer according to claim 1, wherein Ar^1 is a moiety derived from a reactant selected from the group consisting of 2,2-bis(3-amino-4-hydroxyphenyl)-hexafluoropropane, 3,3'-dihydroxy-4,4'-diaminodiphenylether, 3,3'-dihydroxybenzidine, 4,6-diaminoresorcinol, and G is alkylcarbonyl.

12. (Currently amended) A positive photosensitive resin composition comprising:

(a) at least one polybenzoxazole precursor polymer selected from the group consisting of polymers having Structure I and III;

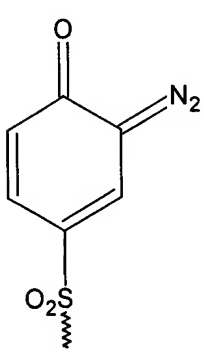


(I)

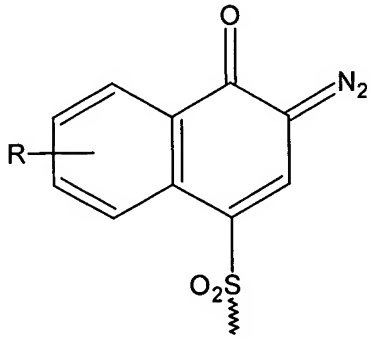


(III)

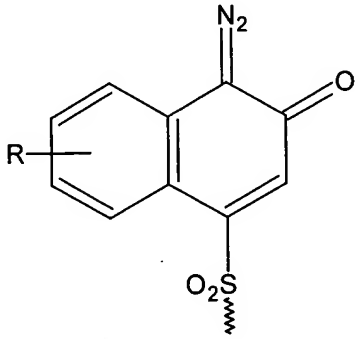
wherein Ar^1 is selected from the group consisting of a tetravalent aromatic group, a tetravalent heterocyclic group and mixtures thereof; Ar^2 is selected from the group consisting of a divalent aromatic, a divalent heterocyclic, a divalent alicyclic and a divalent aliphatic group that may contain silicon and mixtures thereof; Ar^3 is selected from the group consisting of a divalent aromatic group, a divalent aliphatic group, a divalent heterocyclic group and mixtures thereof; Ar^4 is selected from the group consisting of $Ar^1(OH)_2$ and Ar^2; D is selected from the group consisting of one of the following moieties IIa-IIe:



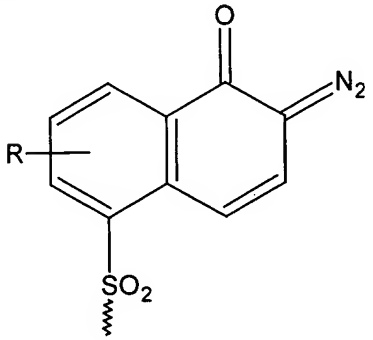
(IIa)



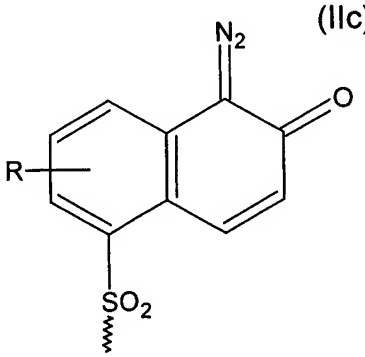
(IIb)



(IIc)



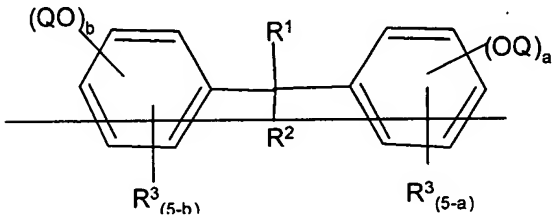
(IId)



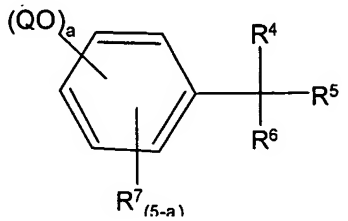
(IIe)

wherein, R is selected from the group consisting of H, a $C_1 - C_4$ alkyl group, a $C_1 - C_4$ alkoxy group and a cyclohexyl group; k^1 can be any positive value of up to about 0.5, k^2 can be any value from about 1.5 to 2 with the proviso that $(k^1+k^2)=2$, x is from about 10 to about 1000; y is from about 0 to about 900; and G is an organic group having a carbonyl, carbonyloxy or sulfonyl group attached directly to the terminal NH of the polymer,

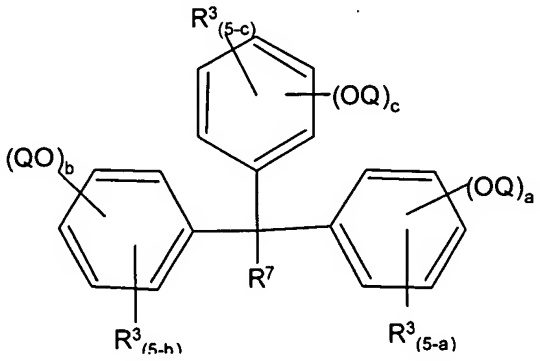
(b) at least one non-polymeric photosensitive compound comprising a compound having within its structure one or more of moieties selected from the group consisting of IIa-IIe, with the proviso that if a polymer of Structure III is the sole polybenzoxazole precursor polymer, the non-polymeric photosensitive compound is selected from the group consisting of compounds described by structures ~~IV—VI~~ V -VI,



~~(IV)~~



(V)



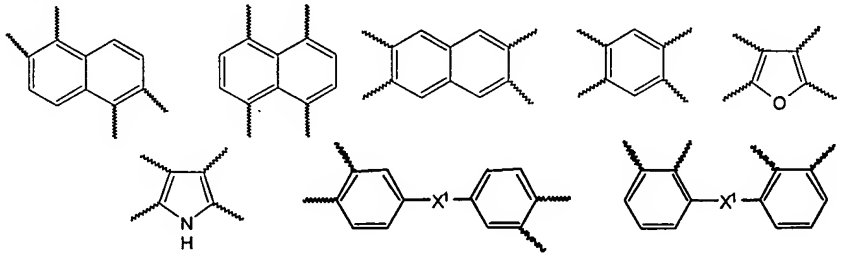
(VI)

wherein R^1, R^2 , R^4, R^5, R^6 and R^7 each independently are selected from the group

consisting of a linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated C_1 - C_4 linear or branched alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4 alkyl or halide substituted C_5 - C_7 cycloalkyl group, or alternatively R^1 and R^2 or any two of R^4, R^5, and R^6 may together form a 5-7 membered ring; each R^3 is independently selected from the group consisting of H, a linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated linear or branched C_1 - C_4 alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4 alkyl or halide substituted C_5 - C_7 cycloalkyl group, an unsubstituted phenyl group, and a phenyl or alkyl or halide substituted phenyl group; Q is selected from the group consisting of H or D with the proviso that at least one Q = D; D is selected from the group consisting of one of the moieties IIa-IIe; a is an integer from 1 to 5; b and c are integers from 0 to 5 with the ~~provisos: (1) that for Structure IV, if a = b = 1 and both OQ are substituted para to the R^1R^2C substituent, then both R^1 and R^2 are not simultaneously methyl, and (2) 1 <= a+b <= 6; and the~~ proviso that for Structure VI, if a = b = c = 1 and all OQ are para to the triphenyl methane carbon substituent, then at least one R^3 is not H; and

(c) at least one solvent.

13. (Original) A positive photosensitive resin composition according to claim 12, wherein Ar^1 is a moiety selected from the group consisting of

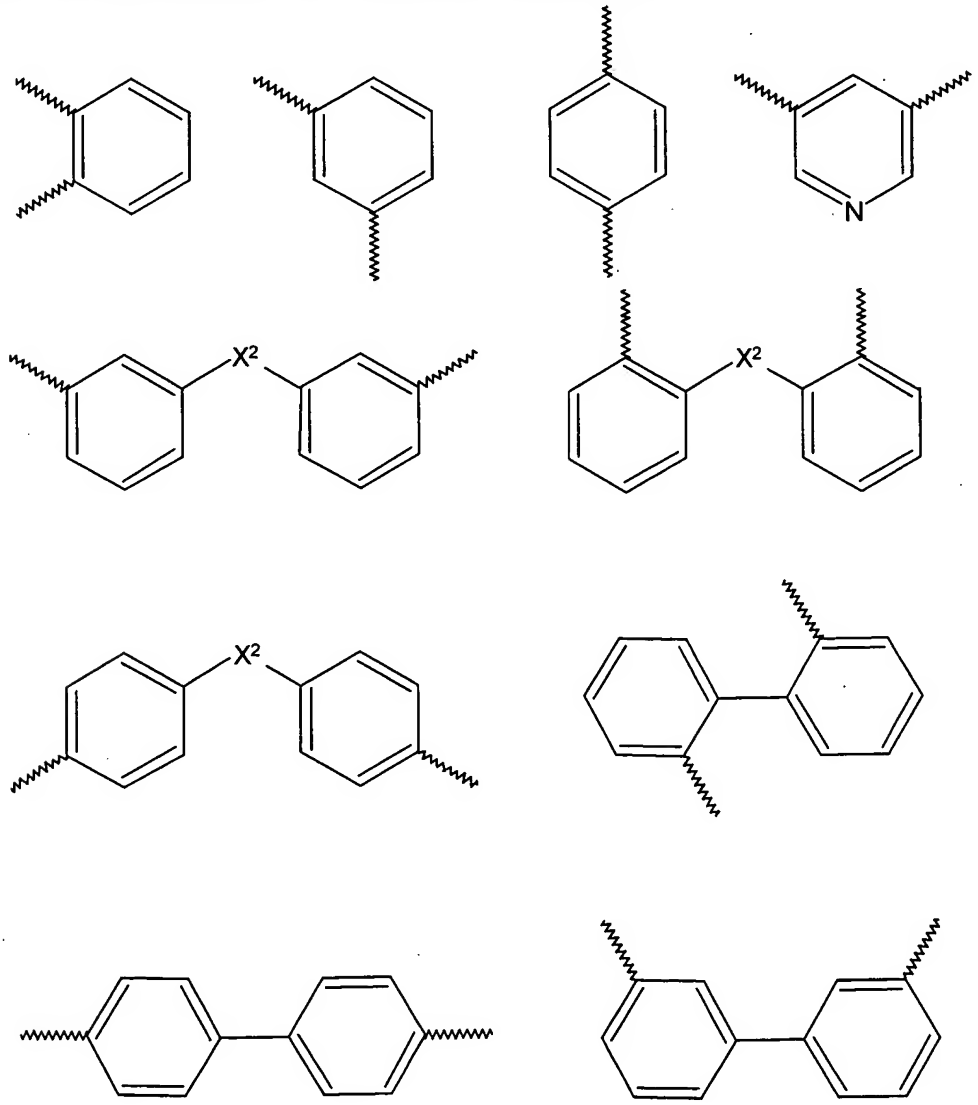


wherein X^1 is selected from the group consisting of -O-, -S-, $-C(CF_3)_2-$, $-CH_2-$, $-SO_2-$, -NHCO- and $-SiR^9{}_2-$ and each R^9 is independently selected from the group consisting of a $C_1 - C_7$ linear or branched alkyl and a $C_5 - C_8$ cycloalkyl group.

14. (Original) A positive photosensitive resin composition according to claim 12, wherein

Ar^1 is a moiety derived from a reactant selected from the group consisting of 2,2-bis(3-amino-4-hydroxyphenyl)-hexafluoropropane, 3,3'-dihydroxy-4,4'-diaminodiphenylether, 3,3'-dihydroxybenzidine, 4,6-diaminoresorcinol, and 2,2-bis(3-amino-4-hydroxyphenyl)propane or mixtures thereof.

15. (Original) A positive photosensitive resin composition according to claim 12, wherein Ar^3 is a moiety selected from the group consisting of



wherein X^2 is selected from the group consisting of -O-, -S-, $-C(CF_3)_2-$, $-CH_2-$, $-SO_2-$ and -

NHCO-.

16. (Original) A positive photosensitive resin composition according to claim 12, wherein Ar^3 is a moiety derived from a reactant selected from the group consisting of 4,4'-diphenyletherdicarboxylic acid, terephthalic acid, isophthalic acid, isophthaloyl dichloride, phthaloyl dichloride, terephthaloyl dichloride, 4,4'-diphenyletherdicarboxylic acid dichloride, dimethylisophthalate, dimethylphthalate, dimethylterphthalate, diethylisophthalate, diethylphthalate, diethylterphthalate and mixtures thereof.

17. (Original) A positive photosensitive resin composition according to claim 12, wherein D is selected from the group consisting of the moiety IIb and the moiety IId.

18. (Original) A positive photosensitive resin composition according to claim 12, wherein k^1 is from about 0.01 to about 0.1.

19. (Original) A positive photosensitive resin composition according to claim 12, wherein G is an organic group having a carbonyl group attached directly to the terminal NH of the polybenzoxazole precursor polymer.

20. (Original) A positive photosensitive resin composition according to claim 12, wherein G is alkyl carbonyl.

21. (Original) A positive photosensitive resin composition according to claim 12, wherein the at least one polybenzoxazole precursor polymer comprises Structure I.

22. (Original) A positive photosensitive resin composition according to claim 12, wherein the at least one polybenzoxazole precursor polymer comprises Structure III.

23. (Original) A positive photosensitive resin composition according to claim 12, wherein the at least one polybenzoxazole precursor polymer comprises a mixture of Structure I and

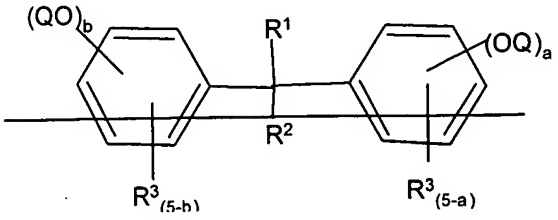
Structure III.

24. (Original) A positive photosensitive resin composition according to claim 21, wherein the at least one non-polymeric photosensitive compound comprises a compound having within its structure a moiety selected from the group consisting of the moiety IIb and the moiety IId.

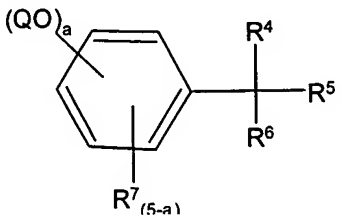
25. (Original) A positive photosensitive resin composition according to claim 22, wherein the at least one non-polymeric photosensitive compound comprises a compound having within its structure a moiety selected from the group consisting of the moiety IIb and the moiety IId.

26. (Original) A positive photosensitive resin composition according to claim 23, wherein the at least one non-polymeric photosensitive compound comprises a compound having within its structure a moiety selected from the group consisting of the moiety IIb and the moiety IId.

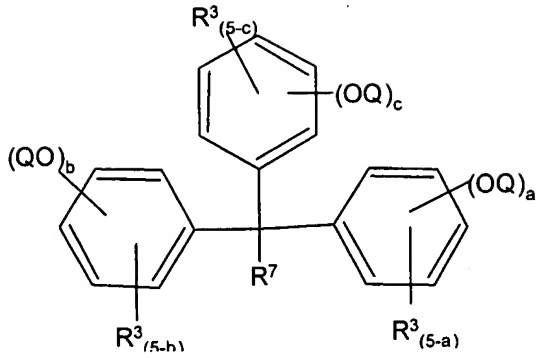
27. (Currently amended)) A positive photosensitive resin composition according to claim 21, wherein the at least one non-polymeric photosensitive compound comprises a compound having within its structure a moiety selected from the group consisting of the moiety IIb and or the moiety IId and is selected from the group consisting of compounds described by structures ~~IV—VI~~ V -VI,



~~(IV)~~

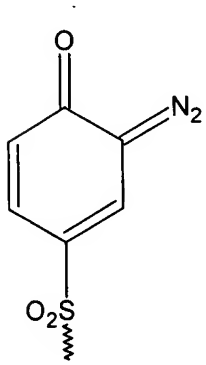


(V)

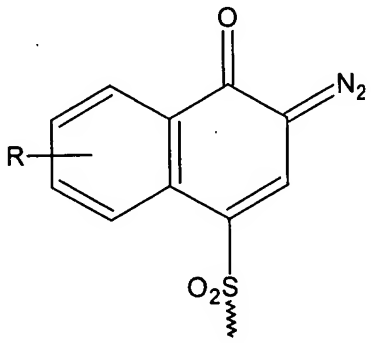


(VI)

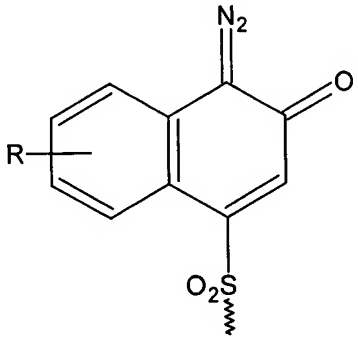
wherein R^1, R^2 , R^4, R^5, R^6 and R^7 each independently are selected from the group consisting of a linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated C_1 - C_4 linear or branched alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4 alkyl or halide substituted C_5 - C_7 cycloalkyl group or alternatively R^1 and R^2 or any two of R^4, R^5, and R^6 may together form a 5-7 membered ring; each R^3 is independently selected from the group consisting of H, a linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated linear or branched C_1 - C_4 alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4 alkyl or halide substituted C_5 - C_7 cycloalkyl group, an unsubstituted phenyl group, and a phenyl or alkyl or halide substituted phenyl group; Q is selected from the group consisting of H or D with the proviso that at least one Q = D; D is selected from the group consisting of one of the following moieties IIa-IIe:



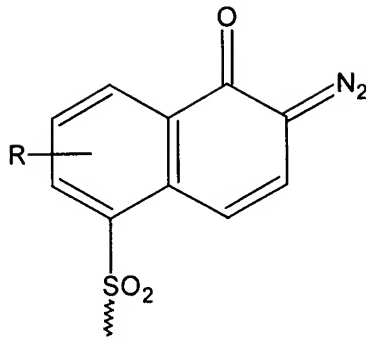
(IIa)



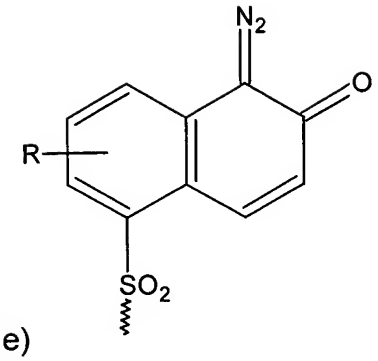
(IIb)



(IIc)



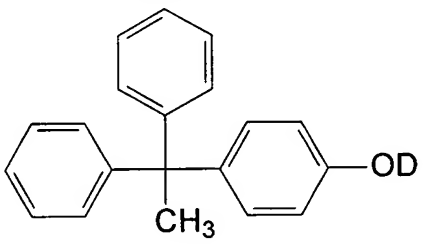
(IId)

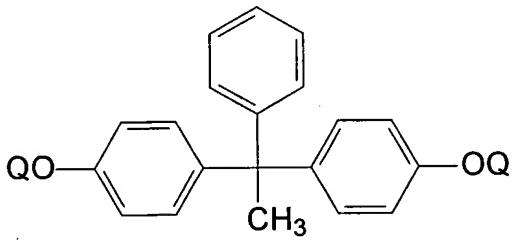


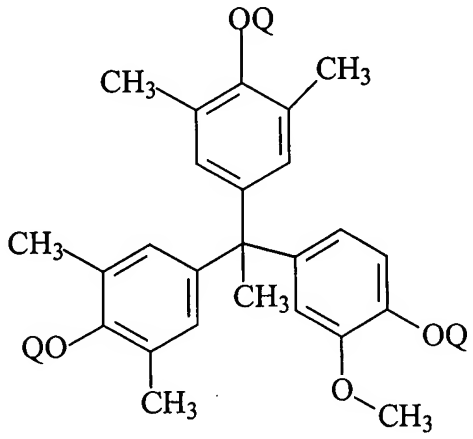
(IIe)

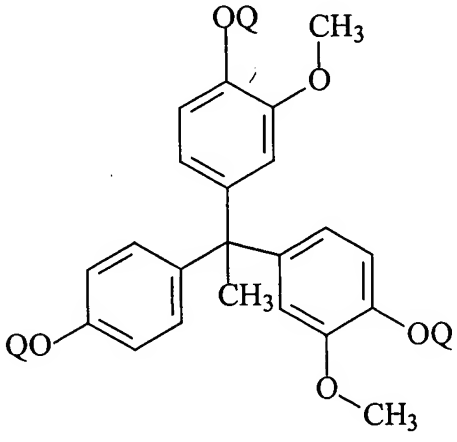
wherein, R is selected from the group consisting of H, a $C_1 - C_4$ alkyl group, a $C_1 - C_4$ alkoxy group and a cyclohexyl group; a is an integer from 1 to 5; b and c are integers from 0 to 5 with the ~~provisos: (1) that for Structure IV, if a = b = 1 and both OQ are substituted para to the R^1R^2C substituent, then both R^1 and R^2 are not simultaneously methyl and (2) 1 <= a+b < 6; and the~~ proviso that for Structure VI, if a = b = c = 1 and all OQ are para to the triphenyl methane carbon substituent, then at least one R^3 is not H.

28. (Original) A positive photosensitive resin composition according to claim 21, wherein the non-polymeric photosensitive compound is selected from the group consisting of

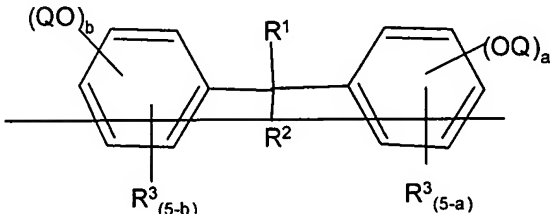




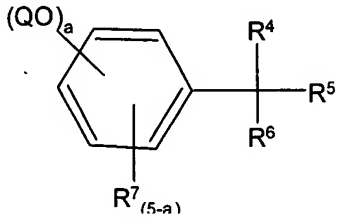




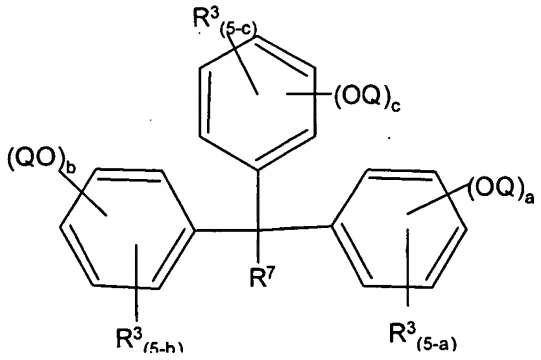
29. (currently amended)A positive photosensitive resin composition according to claim 23, wherein the at least one non-polymeric photosensitive compound comprises a compound having within its structure a moiety selected from the group consisting of the moiety IIb and the moiety IId and is selected from the group consisting of compounds described by structures ~~IV—VI~~ V - VI,



~~(IV)~~



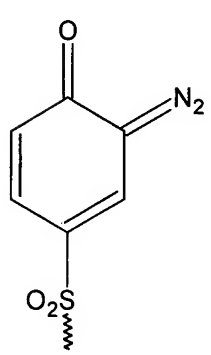
(V)



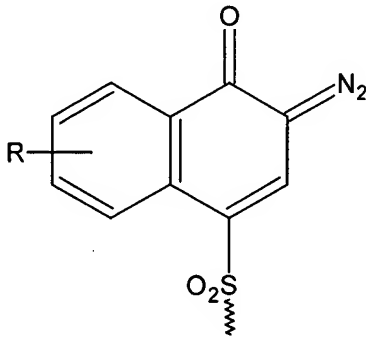
(VI)

wherein R^1, R^2 , R^4, R^5, R^6 and R^7 each independently are selected from the group consisting of a linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated C_1 - C_4 linear or branched alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4 alkyl or halide substituted C_5 - C_7 cycloalkyl group, or alternatively R^1 and R^2 or any two of R^4, R^5, and R^6 may together form a 5-7 membered ring; each R^3 is independently selected from the group consisting of H, a linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated linear or branched C_1 - C_4 alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4

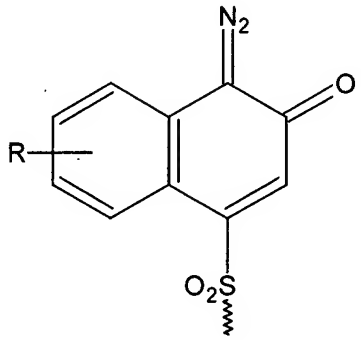
alkyl or halide substituted C_5 - C_7 cycloalkyl group, an unsubstituted phenyl group and a phenyl or alkyl or halide substituted phenyl group; Q is selected from the group consisting of H or D with the proviso that at least one Q = D; D is selected from the group consisting of one of the following moieties IIa-IIe:



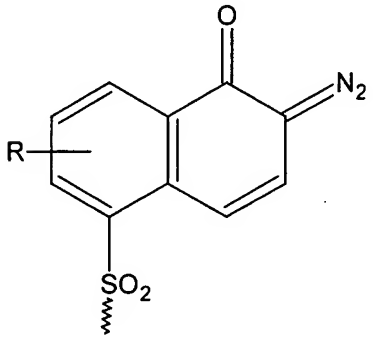
(IIa)



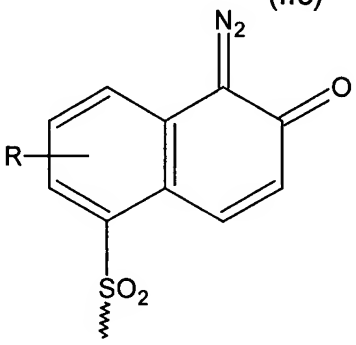
(IIb)



(IIc)



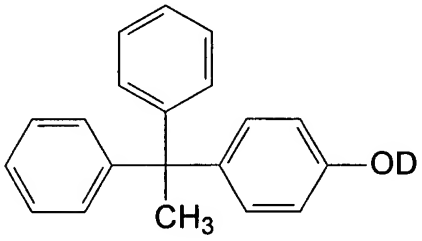
(IId)

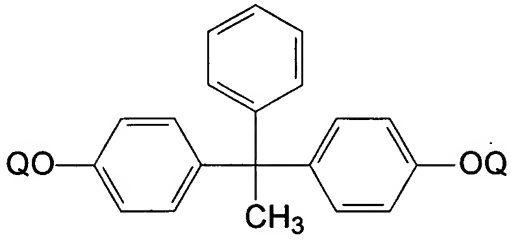


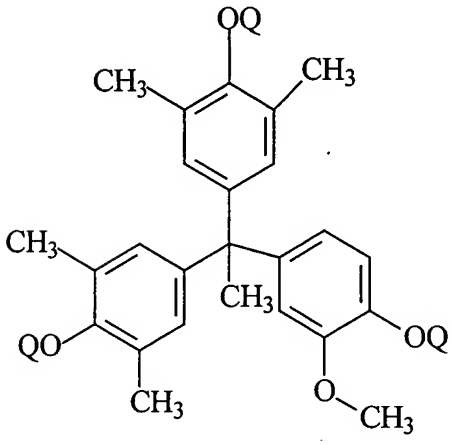
(IIe)

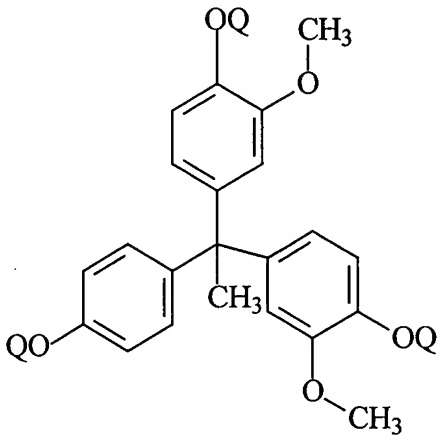
wherein, R is selected from the group consisting of H, a C_1 – C_4 alkyl group, a C_1 – C_4 alkoxy group and a cyclohexyl group; a is an integer from 1 to 5; b and c are integers from 0 to 5 with the ~~provisos: (1) that for Structure IV, if a = b = 1 and both OQ are substituted para to the R^1R^2C substituent, then both R^1 and R^2 are not simultaneously methyl and (2) 1 <= a+b < 6; and the~~ proviso that for Structure VI, if a = b = c = 1 and all OQ are para to the triphenyl methane carbon substituent, then at least one R^3 is not H.

30. (Original) A positive photosensitive resin composition according to claim 23, wherein the non-polymeric photosensitive compound is selected from the group consisting of



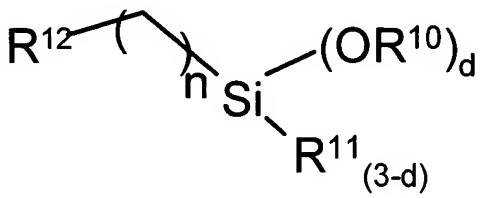






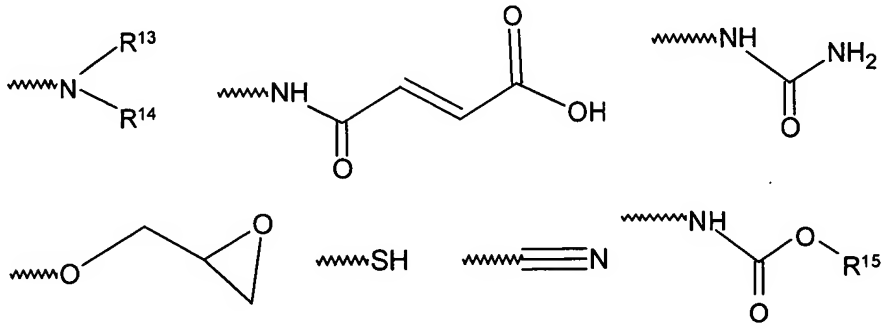
31. (Original) A positive photosensitive resin composition according to claim 12, further comprising an adhesion promoter.

32. (Original) A positive photosensitive resin composition according to claim 31 wherein the adhesion promoter has the Structure XIII



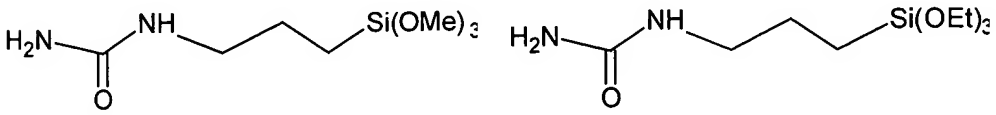
(XIII)

wherein each R^{10} is independently selected from the group consisting of a C_1 – C_4 alkyl group and a C_5 – C_7 cycloalkyl group and each R^{11} is independently selected from the group consisting of a C_1 – C_4 alkyl group, a C_1 – C_4 alkoxy group, a C_5 – C_7 cycloalkyl group and a C_5 – C_7 cycloalkoxy group; d is an integer from 0 to 3 and n is an integer from 1 to about 6 and R^{12} is a moiety selected from the group consisting of one of the following moieties:



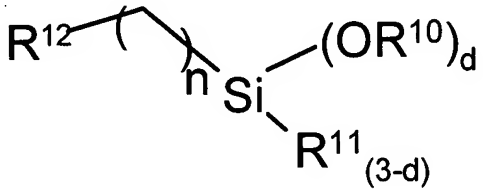
wherein each R^{13} and R^{14} are independently selected from the group consisting of a C_1 – C_4 alkyl group and a C_5 – C_7 cycloalkyl group, and R^{15} is selected from the group consisting of a C_1 – C_4 alkyl group and a C_5 – C_7 cycloalkyl group.

33. (Original) A positive photosensitive resin composition according to claim 31 wherein the adhesion promoter is selected from the group consisting of



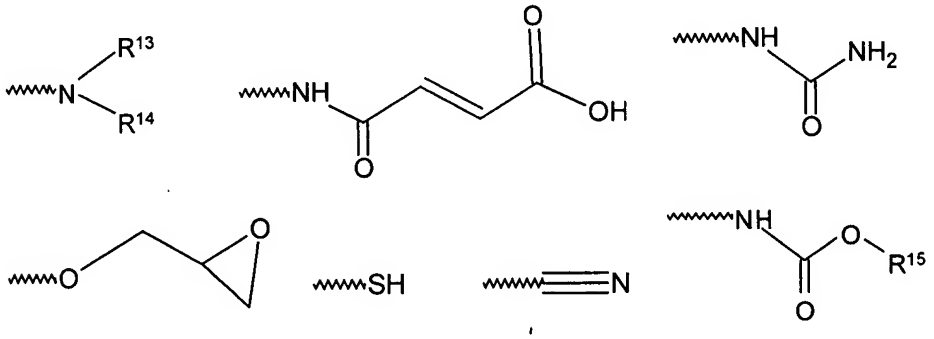
34. (Original) A positive photosensitive resin composition according to claim 24 wherein D on the polybenzoxazole precursor polymer is a moiety selected from the group consisting of moiety IIb and moiety IId.

35. (Original) A positive photosensitive resin composition according to claim 24 wherein D on the polybenzoxazole precursor polymer is a moiety selected from the group consisting of moiety IIb and moiety IId, G is an organic group having a carbonyl group attached directly to the terminal NH of the polybenzoxazole precursor polymer, and the composition further comprises an adhesion promoter having the structure



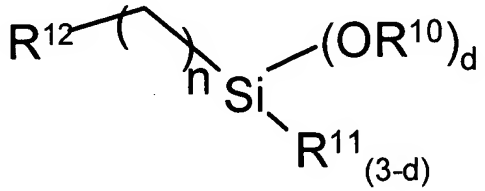
(XIII)

wherein each R^{10} is independently selected from the group consisting of a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group and each R^{11} is independently selected from the group consisting of a $C_1 - C_4$ alkyl group, a $C_1 - C_4$ alkoxy group, a $C_5 - C_7$ cycloalkyl group and a $C_5 - C_7$ cycloalkoxy group; d is an integer from 0 to 3 and n is an integer from 1 to about 6 and R^{12} is selected from the group consisting of one of the following moieties:



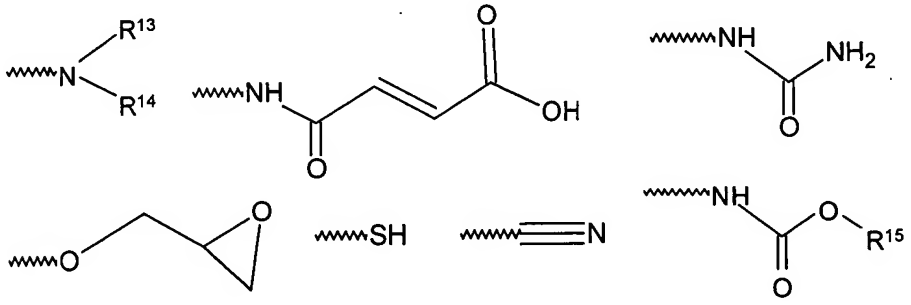
wherein each R^{13} and R^{14} are independently selected from the group consisting of a $C_1 - C_4$ alkyl group or a $C_5 - C_7$ cycloalkyl group, and R^{15} is a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group.

36. (Original) A positive photosensitive resin composition according to claim 25 wherein G is an organic group having a carbonyl group attached directly to the terminal NH of the polybenzoxazole precursor polymer, and the composition further comprises an adhesion promoter having the structure



(XIII)

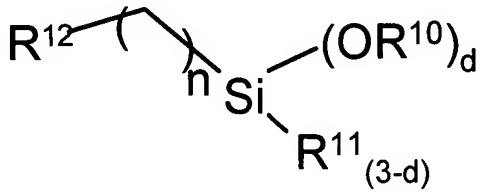
wherein each R^{10} is independently selected from the group consisting of a C_1 – C_4 alkyl group and a C_5 – C_7 cycloalkyl group and each R^{11} is independently selected from the group consisting of a C_1 – C_4 alkyl group, a C_1 – C_4 alkoxy group, a C_5 – C_7 cycloalkyl group and a C_5 – C_7 cycloalkoxy group; d is an integer from 0 to 3 and n is an integer from 1 to about 6 and R^{12} is a moiety selected from the group consisting of one of the following moieties:



wherein each R^{13} and R^{14} are independently selected from the group consisting of a C_1 – C_4 alkyl group and a C_5 – C_7 cycloalkyl group, and R^{15} is selected from the group consisting of a C_1 – C_4 alkyl group and a C_5 – C_7 cycloalkyl group.

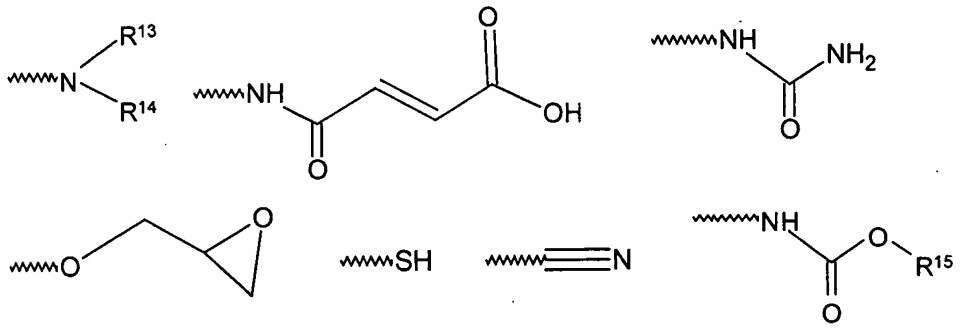
37. (Original) A positive photosensitive resin composition according to claim 26 wherein D

on the polybenzoxazole precursor polymer is a moiety selected from the group consisting of moiety IIb and moiety IId, G is an organic group having a carbonyl group attached directly to the terminal NH of the polybenzoxazole precursor polymer, and the composition further comprises an adhesion promoter having the structure



(XIII)

wherein each R^{10} is independently selected from the group consisting of a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group and each R^{11} is independently selected from the group consisting of a $C_1 - C_4$ alkyl group, a $C_1 - C_4$ alkoxy group, a $C_5 - C_7$ cycloalkyl group and a $C_5 - C_7$ cycloalkoxy group; d is an integer from 0 to 3 and n is an integer from 1 to about 6 and R^{12} is a moiety selected from the group consisting of one of the following moieties:



wherein each R^{13} and R^{14} are independently selected from the group consisting of a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group, and R^{15} is selected from the group consisting of a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group.

38. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 12 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

39. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 17 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

40. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 25 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby

forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

41. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 27 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

42. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 28 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

43. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 29 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(d) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

44. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 31 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

45. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 32 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

46. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of

claim 33 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

47. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 36 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

48. (Original) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 38 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

49. (Original) A substrate having a patterned image produced by the process of claim 38.

50. (Original) A substrate having a patterned image produced by the process of claim 39.

51. (Original) A substrate having a patterned image produced by the process of claim 40.

52. (Original) A substrate having a patterned image produced by the process of claim 41.

53. (Original) A substrate having a patterned image produced by the process of claim 42.

54. (Original) A substrate having a patterned image produced by the process of claim 43.

55. (Original) A substrate having a patterned image produced by the process of claim 44.

56. (Original) A substrate having a patterned image produced by the process of claim 45.

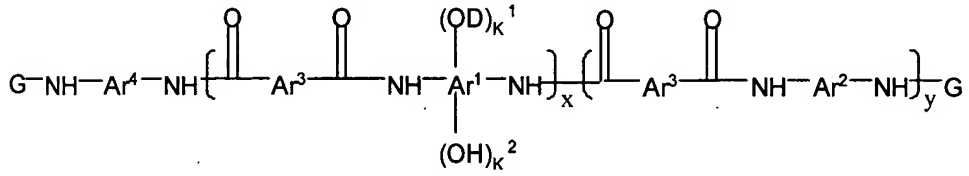
57. (Original) A substrate having a patterned image produced by the process of claim 46.

58. (Original) A substrate having a patterned image produced by the process of claim 47.

59. (Currently amended) A substrate having a patterned image produced by the process of claim 48.

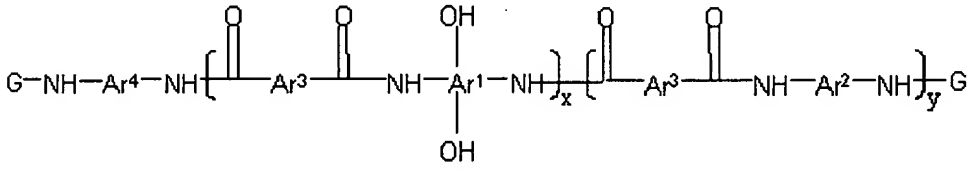
60. (new) A positive photosensitive resin composition comprising:

(a) at least one polybenzoxazole precursor polymer having Structure I:



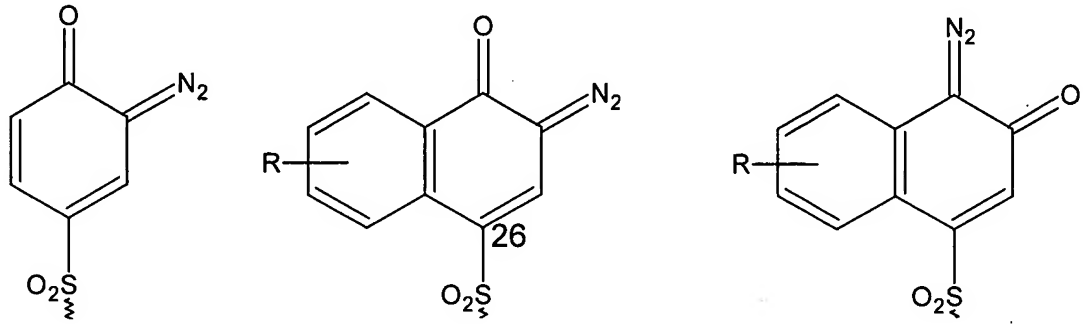
(I)

and optionally at least one polybenzoxazole precursor polymer having Structure III

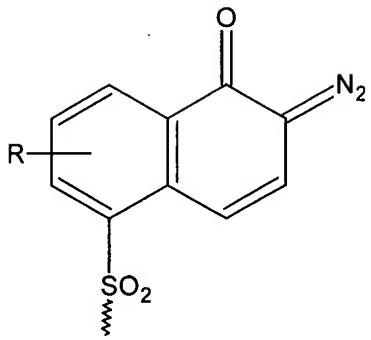


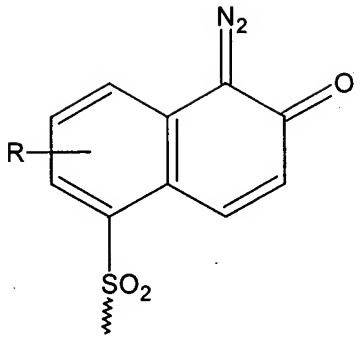
(III)

wherein Ar^1 is selected from the group consisting of a tetravalent aromatic group, a tetravalent heterocyclic group and mixtures thereof; Ar^2 is selected from the group consisting of a divalent aromatic, a divalent heterocyclic, a divalent alicyclic and a divalent aliphatic group that may contain silicon and mixtures thereof; Ar^3 is selected from the group consisting of a divalent aromatic group, a divalent aliphatic group, a divalent heterocyclic group and mixtures thereof; Ar^4 is selected from the group consisting of $Ar^1(OH)_2$ and Ar^2; D is selected from the group consisting of one of the following moieties IIa-IIe:



(IIa) (IIb) (IIc)

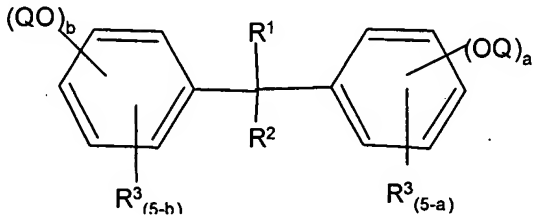




(IId) (IIe)

wherein, R is selected from the group consisting of H, a C_1 – C_4 alkyl group, a C_1 – C_4 alkoxy group and a cyclohexyl group; k^1 can be any positive value of up to about 0.5, k^2 can be any value from about 1.5 to 2 with the proviso that $(k^1+k^2)=2$, x is from about 10 to about 1000; y is from about 0 to about 900; and G is an organic group having a carbonyl, carbonyloxy or sulfonyl group attached directly to the terminal NH of the polymer,

(b) at least one non-polymeric photosensitive compound comprising a compound described by structure IV,



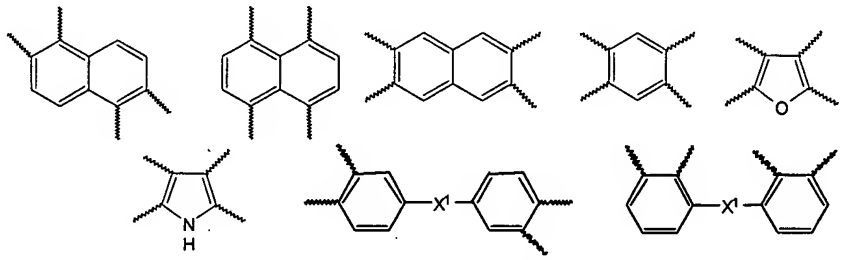
(IV)

wherein R^1 and R^2 are each independently are selected from the group consisting of a

linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated C_1 - C_4 linear or branched alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4 alkyl or halide substituted C_5 - C_7 cycloalkyl group, or alternatively R^1 and R^2 may together form a 5-7 membered ring; each R^3 is independently selected from the group consisting of H, a linear or branched C_1 - C_4 alkyl group, a phenyl or halide substituted C_1 - C_4 linear or branched alkyl group, a perfluorinated linear or branched C_1 - C_4 alkyl group, a C_5 - C_7 cycloalkyl group, a C_1 - C_4 alkyl or halide substituted C_5 - C_7 cycloalkyl group, an unsubstituted phenyl group, and a phenyl or alkyl or halide substituted phenyl group; Q is selected from the group consisting of H or D with the proviso that at least one Q = D; D is selected from the group consisting of one of the moieties IIa-IIe; a is an integer from 1 to 5; b is an integers from 0 to 5; and

(c) at least one solvent.

61. (new) A positive photosensitive resin composition according to claim 60, wherein Ar^1 is a moiety selected from the group consisting of

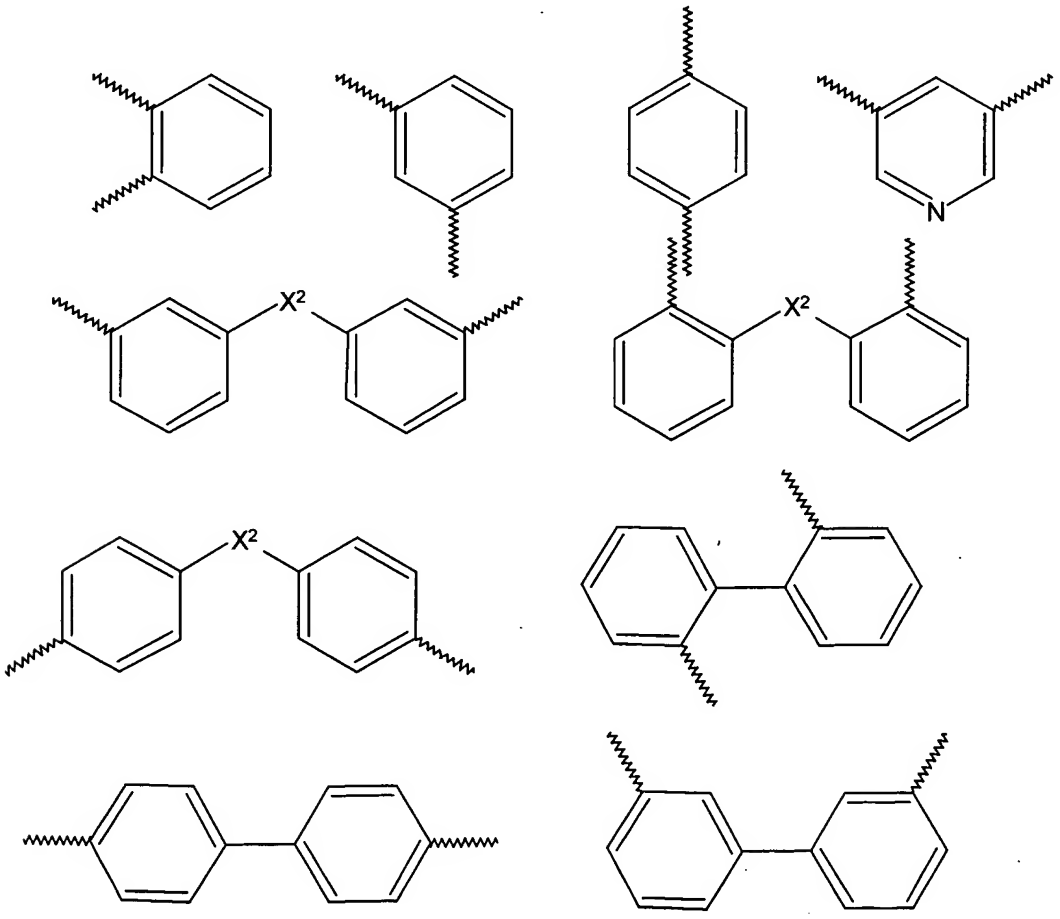


wherein X^1 is selected from the group consisting of -O-, -S-, $-C(CF_3)_2-$, $-CH_2-$, $-SO_2-$, -NHCO- and $-SiR^9{}_2-$ and each R^9 is independently selected from the group consisting of a $C_1 - C_7$ linear or branched alkyl and a $C_5 - C_8$ cycloalkyl group.

62. (new) A positive photosensitive resin composition according to claim 60, wherein Ar^1 is a moiety derived from a reactant selected from the group consisting of 2,2-bis(3-amino-4-hydroxyphenyl)-hexafluoropropane, 3,3'-dihydroxy-4,4'-diaminodiphenylether, 3,3'-

dihydroxybenzidine, 4,6-diaminoresorcinol, and 2,2-bis(3-amino-4-hydroxyphenyl)propane or mixtures thereof.

63. (new) A positive photosensitive resin composition according to claim 60, wherein Ar^3 is a moiety selected from the group consisting of



wherein X^2 is selected from the group consisting of -O-, -S-, $-C(CF_3)_2-$, $-CH_2-$, $-SO_2-$ and -NHCO-.

64. (new) A positive photosensitive resin composition according to claim 60 wherein Ar^3 is a moiety derived from a reactant selected from the group consisting of 4,4'-diphenyletherdicarboxylic acid, terephthalic acid, isophthalic acid, isophthaloyl dichloride, phthaloyl dichloride, terephthaloyl dichloride, 4,4'-diphenyletherdicarboxylic acid dichloride,

dimethylisophthalate, dimethylphthalate, dimethylterphthalate, diethylisophthalate, diethylphthalate, diethylterphthalate and mixtures thereof.

65. (new) A positive photosensitive resin composition according to claim 60, wherein D is selected from the group consisting of the moiety IIb and the moiety IId.

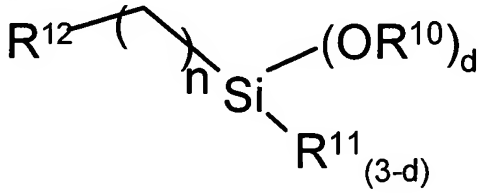
66. (new) A positive photosensitive resin composition according to claim 60, wherein k^1 is from about 0.01 to about 0.1.

67. (new) A positive photosensitive resin composition according to claim 60, wherein G is an organic group having a carbonyl group attached directly to the terminal NH of the polybenzoxazole precursor polymer.

68. (new) A positive photosensitive resin composition according to claim 60, wherein G is alkyl carbonyl.

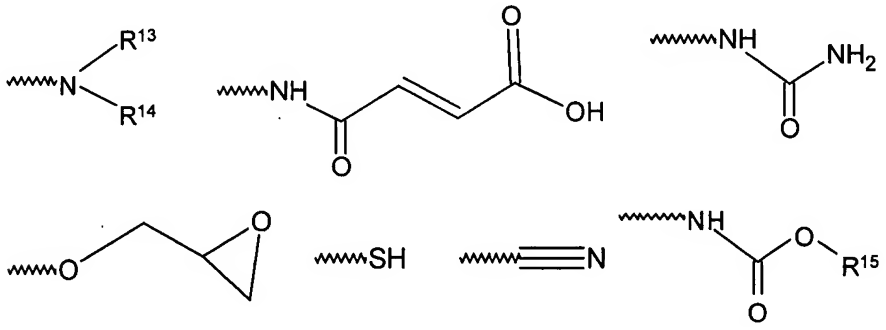
69. (new) A positive photosensitive resin composition according to claim 60, wherein the at least one polybenzoxazole precursor polymer comprises a mixture of Structure I and Structure III.

70. (new) A positive photosensitive resin composition according to claim 60 wherein the composition additionally comprises an adhesion promoter of Structure XIII



(XIII)

wherein each R^{10} is independently selected from the group consisting of a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group and each R^{11} is independently selected from the group consisting of a $C_1 - C_4$ alkyl group, a $C_1 - C_4$ alkoxy group, a $C_5 - C_7$ cycloalkyl group and a $C_5 - C_7$ cycloalkoxy group; d is an integer from 0 to 3 and n is an integer from 1 to about 6 and R^{12} is a moiety selected from the group consisting of one of the following moieties:



wherein each R^{13} and R^{14} are independently selected from the group consisting of a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group, and R^{15} is selected from the group consisting of a $C_1 - C_4$ alkyl group and a $C_5 - C_7$ cycloalkyl group.

71 (new) A positive photosensitive resin composition according to claim 70 wherein the adhesion promoter is selected from the group consisting of

72. (new) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 60 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

73. (new) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 65 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

74. (new) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 68 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

75. (new) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of

claim 69 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

76. (new) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 69 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

77. (new) A process for forming a patterned image on a substrate, the process comprises the steps of:

(a) coating on a suitable substrate, a positive-working photosensitive composition of claim 70 thereby forming a coated substrate;

(b) prebaking the coated substrate;

(c) exposing the prebaked coated substrate to actinic radiation;

(d) developing the exposed coated substrate with an aqueous developer, thereby forming an uncured relief image on the coated substrate; and

(e) baking the developed coated substrate at an elevated temperature, thereby curing the relief image.

78. (new) A substrate having a patterned image produced by the process of claim 72.

79. (new) A substrate having a patterned image produced by the process of claim 77.